

IS 4964 : 2013

(Reaffirmed 2018)

भारतीय मानक

वस्त्रादि — सादी (सिंगल जर्सी) बुनी (निटटेड)
सूती बनियान — विशिष्टि
(पॉचवा पुनरीक्षण)

Indian Standard

TEXTILES — VESTS, COTTON, PLAIN
(SINGLE JERSEY) KNITTED — SPECIFICATION
(*Fifth Revision*)

ICS 60.020

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BUREAU OF INDIAN STANDARDS
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Price Group 5

FOREWORD

This Indian Standard (Fifth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Hosiery Sectional Committee had been approved by the Textile Division Council.

This standard was originally published in 1968, was subsequently revised in 1975, 1980, 1991 and 2003. This standard has been revised again on the basis of experience gained in its implementation. Following major changes have been incorporated in this revision:

- a) Constructional particular of the vest fabric has been specified.
- b) A new size of 115 cm has been incorporated for RN, VN, RNS and VNS types of vests.
- c) Tolerances on the dimensions of the vests have been modified.
- d) Requirement for colour fastness to rubbing has been specified.
- e) Requirements for *pH* value for aqueous extract, colour fastness to light and colour fastness to perspiration has been modified.
- f) Marking requirements has been modified.

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — VESTS, COTTON, PLAIN
(SINGLE JERSEY) KNITTED — SPECIFICATION
(Fifth Revision)

1 SCOPE

1.1 This standard prescribes the requirements of grey, scoured, bleached, dyed or printed plain (single jersey) knitted cotton vests with or without sleeves having round or V-neck.

1.2 This standard also covers vests tailored from coloured plain knitted cotton fabric obtained by knitting with dyed yarn.

1.3 This standard does not specify general appearance, feel, lustre, degree of whiteness, shade, colour or print design of vest (*see 5.3*).

2 REFERENCES

The standards given in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard the definitions given in IS 3596 (*see also* SP 45) in addition to following shall apply.

3.1 Folding — A process of covering a cut edge of a fabric with a piece of fabric by folding and stitching, for giving appropriate finish to the vest as an embellishment.

4 MANUFACTURE AND FINISH**4.1 Fabric**

The vest shall be tailored out of well and evenly knitted tubular fabric (*see* IS 9469). The width of fabric roll from which the vest is to be tailored shall correspond to the size of the vest. The fabric shall be scoured,

bleached, dyed or printed and shall conform to construction particulars given below:

| <i>Sl No.</i> | <i>Gauge of Machine¹⁾</i> | <i>Approximate Count of Yarn - Cotton Count Tex</i> | <i>Mass/m² Min g</i> |
|---------------|--------------------------------------|---|---------------------------------|
| (1) | (2) | (3) | (4) |
| i) | 24 (Fine) | 30s (19.5) - 40s (14.5) | 115 |
| ii) | 26 (Super fine) | 34s (17.0) - 50s (12.0) | 110 |
| iii) | 28 (Extra super fine) | 40s (14.5) - 50s (12.0) | 120 |

¹⁾As determined by number of needles per 2.5 cm.

4.1.1 The mass of the vest, in g/m², shall be determined by the method given in **B-5**.

4.1.2 In case of short sleeves round-neck vest with welts, the welting at the sleeves end shall be made of two layers of 1 × 1 rib knitted fabric knitted from cotton hosiery yarn of the same count as used for the plain knitted fabric.

4.1.3 In case of vests with folding, folding shall be given at neck, armhole or sleeves covering the cut edge of the vest with a piece of the same or finer texture fabric as used for the vest.

4.2 The design and shape of vest shall be as detailed below. The wales shall run along the length of the vest and sleeves:

- a) Round-neck sleeveless (RN), Fig. 1A and short sleeves (RNS), Fig. 1B.
- b) V-neck, sleeveless (VN), Fig. 2A and short sleeves (VNS), Fig. 2B; and
- c) Round-neck short sleeves with welts (RNW), Fig. 3.

4.2.1 When pockets are provided to cotton vests by stitching an extra piece of fabric, the same fabric as

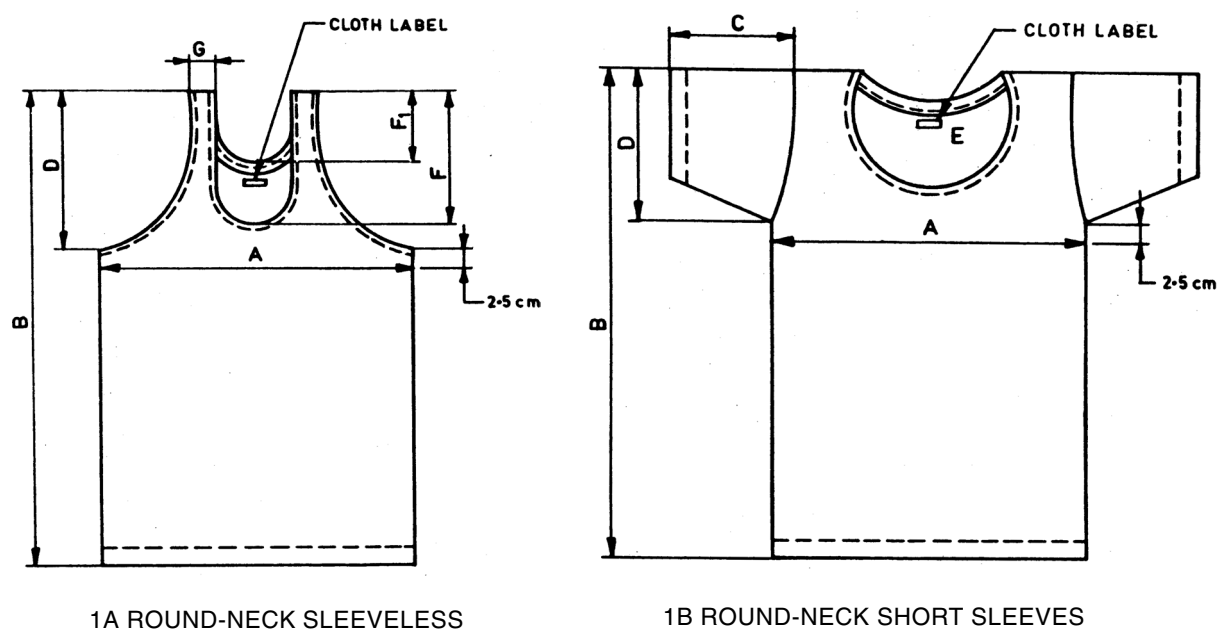


FIG. 1 DESIGN AND SHAPE OF ROUND NECK VEST

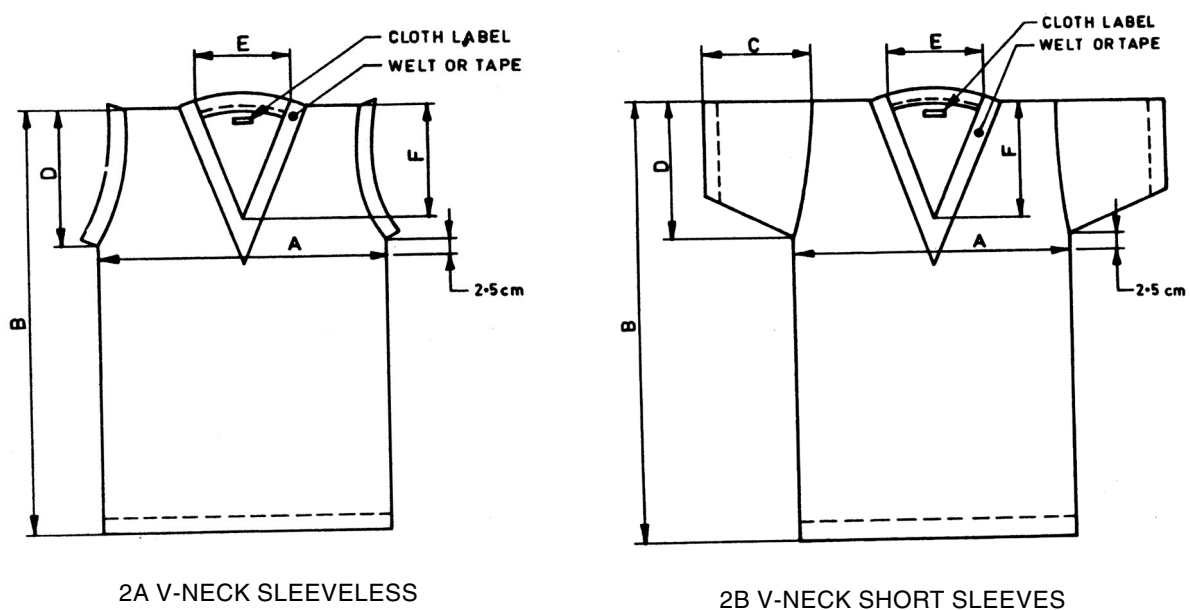


FIG. 2 DESIGN AND SHAPE OF V-NECK SLEEVELESS VEST

used for making cotton vests shall be used. Size and shape of the pocket shall be as agreed to between the buyer and the seller.

4.3 Seams and Stitches

4.3.1 The type of stitch (*see* IS 11161) and count of

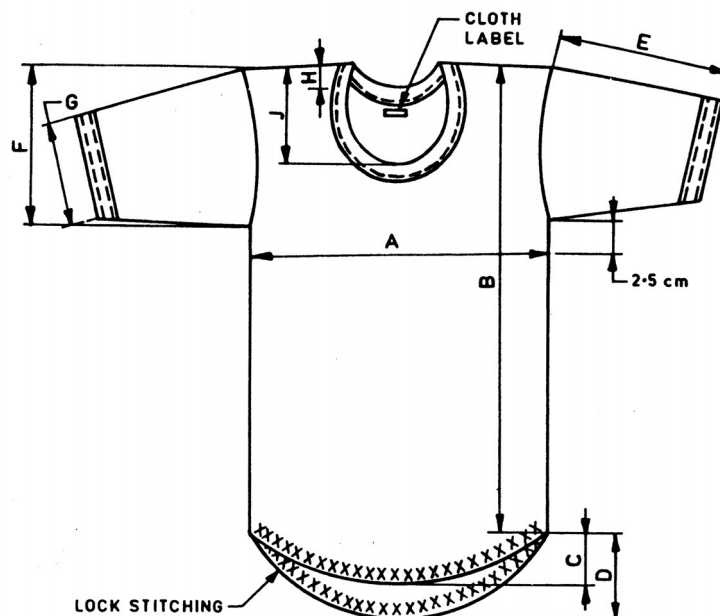


FIG. 3 ROUND-NECK SHORT SLEEVES WITH WELTS

Table 1 Seams and Stitches

(Clause 4.3.1)

| Sl No. | Portion to be Stitched | Type of Stitch | Number of Stitches/cm Min (4) | Recommended Thread in the Needle(s) ¹⁾ | Recommended Thread in the Loper(s) ¹⁾ |
|--------|---|---|-------------------------------------|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Shoulder pieces, sleeves to the vest and underarms, tape/welt sewn to neck-opening armholes, sleeves and bottom | 3 thread overlock | 4 | One strand of 60s/3 (100 d tex × 3) cotton sewing thread | Two strands of 40s/2 (145 d tex × 2) cotton sewing thread |
| ii) | Hemming at the bottom and elbow ends of sleeves | 2 or 3 thread overlock | 4 | One strand of 60s/3 (100 d tex × 3) cotton sewing thread | 1/2 strand(s) of 40s/2 (145 d tex × 2) cotton sewing thread |
| iii) | Hemming at sleeves and armholes | a) Double chain or b) Flat lock chain | 4 | One strand of 60s/3 (100 d tex × 3) cotton sewing thread Three strands of 60s/3 (100 d tex × 3) cotton sewing thread | One strand(s) of 60s/3 (145 d tex × 2) cotton sewing thread One strand of 40s/2 (145 d tex × 2) cotton sewing thread in combination with one strand of 33 tex (300 denier) rayon or Both the strands of cotton sewing thread or rayon of the particular stated above |
| iv) | Folding at sleeve, neck opening and armhole | Reverse flat lock | 4 | Three threads of 60s/3 (100 d tex × 3) cotton sewing thread | One strand of 40s/2 (145 d tex × 2) cotton sewing thread in combination with one strand of 33 tex (300 denier) rayon or Both the strands of cotton sewing thread or rayon of the particulars stated above |

¹⁾ For sewing threads, see IS 1720 Variety No. 2, 3, 4, 5, 12, 13, 15 or 16; or IS 9543 Variety No. 1, 2, 3, 4, or 5.

sewing thread (*see* IS 10789) for seams and stitches at various portions of vest shall be as given in Table 1. However, the vest with folding shall be sewn by reverse flat-lock as detailed in Table 1, SI No. (iv).

4.3.2 The minimum depth of hem, width of folding or width of tape/welt at bottom, at arm holes, at sleeves and at neck opening when measured according to **B-4** shall be as under:

| Characteristics (1) | Size (<i>see</i> Note 1) | | |
|--|---------------------------|-------------------|--------------------|
| | 45 - 70 cm (2) | 75 - 90 cm (3) | 95 - 115 cm (4) |
| Depth of hem or width of folding at neck and armhole opening for RN vest | 5 | 8 | 9 |
| Depth of hem or width of folding at neck opening for RNS vest | 5 | 8 | 9 |
| Width of folding at bottom for all vest and at sleeves for RNS/VNS vest | 5 | 8 | 9 |
| Depth of hem at bottom for all vest and at sleeves for RNS/VNS/RNW vest | 15 | 20 | 25 |
| Width of tape/welt at bottom for all vests and at sleeves for RNS/VNS/RNW vest | 10 | 15 | 20 |
| Width of tape/welt at neck opening for VN/VNS vest and at armhole opening for VN vests | 10 | 15 | 20 |

NOTES

1 *See* Note under **5.1**.

2 All dimensions in millimetres.

4.3.3 For RNW vests, the bottom shall be suitably finished by lock stitching.

4.4 The knitted fabric from which vest is tailored shall not be over boarded.

4.5 The tailored vest may also be screen or transfer printed with motifs or designs as agreed to between the buyer and the manufacturer.

4.6 Freedom from Defects

The vests shall be visually examined and these shall be free from defects such as missed stitches, holes and cuts, oil stains or any other defect which may significantly mar the appearance of vest.

5 REQUIREMENTS

5.1 Dimensions

The dimensions of vests when measured by the method prescribed in Annex B shall conform to the requirements given in Tables 2 and 3.

NOTE — The size is designated by a number which is numerical value of chest girth of vest in cm. For example, an 80 size vest represents the vest with chest girth of 80 cm.

5.2 Other Requirements

The vests shall satisfy the other requirements as given in Table 4.

5.3 Sealed Sample

In order to illustrate or specify the indeterminable

characteristics such as general appearance, degree of whiteness, colour, shade or print design of vest, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

5.3.1 The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

6 MARKING

6.1 A suitable cloth label made of woven cotton, taffeta/satin or fusing type shall be fastened or fused to each vest at the inside of neck portion (backside) on which the following shall be indicated by printing:

- Size, in cm (*see* **5.1**);
- Name of manufacture or trade-mark, if any;
- Designation of the fabric; and
- Care labelling, if required by the buyer (*see* IS 14452).

NOTE — The colour from the label shall not bleed on to the vest during storage or use.

6.2 BIS Certification Marking

The vest may also be marked with the Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and Rules and Regulations made thereunder. The details of the conditions under which a license for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 PACKAGING

The vest(s) shall be packed in polyethylene or polypropylene bags and in boxes, as required by the buyer. However, each box shall also be marked with the following:

a) Name of the material;

- b) Count of yarn and type (carded or combed);
 c) Designation of the fabric;
 d) Vest design (*see* 4.2) and size, in cm (*see* 5.1);
 e) Quantity/box;
 f) Name of manufacturer; and
 g) Any other information as required by buyer or the law in force.

**Table 2 Dimensions of Vest – Round - Neck /V-Neck, Sleeveless
(RN or VN) and Short Sleeves (RNS or VNS)**
(Clause 5.1)

All dimensions in centimetres.

| Sl No. | Size | Width Across Chest | Length of Vest | Length of Sleeves RNS/VNS | Length of Armhole RN/RNS VN/VNS | Round Neck Opening RNS | RN | | | VN/VNS | |
|-----------|------|--------------------|------------------|---------------------------|---------------------------------|------------------------|---------------------|-----------------------|-------------------------|------------------------|------------------------|
| | | | | | | | Depth of Neck Front | Opening Back | Width of Shoulder Strap | Width of Neck Opening | Depth of Neck Opening |
| | | | | | | | <i>F</i> | <i>F</i> ₁ | <i>Min</i> <i>G</i> | <i>Min</i> <i>E</i> | <i>Min</i> <i>F</i> |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| i) | 40 | 20.0 | 32.0 | 8.0 | 10.0 | 42.0 | 11.0 | 5.0 | | 7.0 | 8.0 |
| ii) | 45 | 22.5 | 36.0 | 9.0 | 11.0 | 44.0 | 11.0 | 5.0 | | 7.0 | 9.0 |
| iii) | 50 | 25.0 | 40.0 | 10.0 | 13.0 | 46.0 | 13.0 | 5.0 | 1.5 | 8.0 | 10.0 |
| iv) | 55 | 27.5 | 44.0 | 11.0 | 14.0 | 49.0 | 13.0 | 5.0 | | 9.0 | 11.0 |
| v) | 60 | 30.0 | 48.0 | 12.0 | 15.0 | 52.0 | 14.0 | 6.0 | | 10.0 | 13.0 |
| vi) | 65 | 32.0 | 52.0 | 13.0 | 16.0 | 54.0 | 14.0 | 6.0 | | 11.0 | 14.0 |
| vii) | 70 | 35.0 | 56.0 | 14.0 | 18.0 | 56.0 | 15.0 | 7.0 | | 12.0 | 15.0 |
| viii) | 75 | 37.5 | 60.0 | 15.0 | 19.0 | 58.0 | 15.0 | 7.0 | | 12.0 | 16.0 |
| ix) | 80 | 40.0 | 64.0 | 16.0 | 20.0 | 60.0 | 16.0 | 7.0 | | 13.0 | 18.0 |
| x) | 85 | 42.0 | 68.0 | 17.0 | 21.0 | 61.0 | 18.0 | 7.0 | | 14.0 | 19.0 |
| xi) | 90 | 45.0 | 72.0 | 18.0 | 23.0 | 62.0 | 18.0 | 9.0 | 3.0 | 15.0 | 20.0 |
| xii) | 95 | 47.5 | 76.0 | 19.0 | 24.0 | 63.0 | 19.0 | 9.0 | | 16.0 | 21.0 |
| xiii) | 100 | 50.0 | 80.0 | 20.0 | 25.0 | 64.0 | 19.0 | 9.0 | | 17.0 | 23.0 |
| xiv) | 105 | 52.0 | 82.0 | 21.0 | 26.0 | 65.0 | 20.0 | 9.0 | | 17.0 | 24.0 |
| xv) | 110 | 55.0 | 84.0 | 22.0 | 27.0 | 65.0 | 20.0 | 9.0 | | 18.0 | 25.0 |
| xvi) | 115 | 57.5 | 86.0 | 23.0 | 28.0 | 65.0 | 20.0 | 9.0 | | 18.0 | 26.0 |
| Tolerance | | ±1.5 | –1 + no limit | ±1.0 | ± 2.0 | ± 3.0 | –1 + no limit | –1 + no limit | – | – | – |

Table 3 Dimensions of Round-Neck Short Sleeves Vest, with Welts (RNW)
(Clause 5.1)

All dimensions in centimetres.

| Sl No. | Size | Width Across Chest <i>A</i> | Length of Vest | | | Length of Sleeves Including Welting <i>E</i> | Width of Armhole ¹⁾ <i>F</i> | Width at Sleeve End <i>G</i> | Neck Opening ¹⁾ | |
|-----------|------|--------------------------------|--------------------|--------------------|--------------------|---|--|---------------------------------|----------------------------|----------------------------|
| | | | <i>B</i> | <i>C</i> | <i>D</i> | | | | Depth at Back <i>H</i> | Depth at Front <i>J</i> |
| | | | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| i) | 80 | 40.0 | 55.0 | 8.0 | 10.0 | 20.0 | 20.0 | 11.0 | 3.0 | 14.0 |
| ii) | 85 | 42.5 | 56.5 | 8.5 | 10.5 | 21.0 | 21.0 | 11.0 | 3.0 | 14.0 |
| iii) | 90 | 45.0 | 62.0 | 9.0 | 11.5 | 22.0 | 22.0 | 12.0 | 3.0 | 15.0 |
| iv) | 95 | 47.5 | 63.5 | 9.5 | 12.0 | 23.0 | 24.0 | 13.0 | 3.5 | 15.0 |
| v) | 100 | 50.0 | 66.0 | 10.0 | 12.5 | 24.0 | 25.0 | 14.0 | 3.5 | 16.0 |
| vi) | 105 | 52.5 | 68.5 | 10.5 | 13.0 | 25.0 | 26.0 | 15.0 | 3.5 | 16.0 |
| vii) | 110 | 55.0 | 71.0 | 11.0 | 13.5 | 26.0 | 27.0 | 16.0 | 4.0 | 17.0 |
| viii) | 115 | 57.5 | 73.5 | 11.5 | 14.5 | 27.0 | 28.0 | 17.0 | 4.0 | 17.0 |
| Tolerance | | ±2.0 | –1.0 + no limit | –1.0 + no limit | –1.0 + no limit | ±1.0 | ±2.0 | +1.0 + no limit | ±3.0 | +1.0 –0.5 |

¹⁾ These dimensions may be varied, if desired by the buyer due to geographical conditions or the preference of consumers. However, the declared values shall be subjected to the tolerance specified.

8 PACKING

The boxes containing vests shall be packed as agreed to between the buyer and the seller, preferably in bales or cases in accordance with IS 3086 or IS 3325 as the case may be.

9 SAMPLING AND CRITERIA FOR CONFORMITY

9.1 Lot

In any consignment all vests of the same size and manufactured from plain knitted fabric knitted from the same count of yarn and delivered to a buyer against

one dispatch note shall constitute a lot.

9.1.1 The conformity of a lot to the requirements of this standard shall be determined on the basis of the tests carried out on the samples selected from the lot.

9.2 Unless otherwise agreed to between the buyer and the seller, number of vests depending upon the size of the lot shall be selected at random from the lot to constitute the gross sample. The number of vests so selected shall be in accordance with col 3 of Table 5.

9.3 The number of vests to be tested and criterion for conformity for each of the characteristics shall be as follows:

| <i>Characteristics</i> | <i>Number of Vests to be Tested</i> | <i>Criterion for Conformity</i> |
|--|--|---|
| Freedom from defects, mass/m ² dimensions | See col 3 of Table 5 | Non-conforming vests not to exceed the corresponding number given in col 4 of Table 5 |
| Dimensional change and pH value of aqueous extract | See col 5 of Table 5 | All the vests to satisfy the relevant requirements |
| Colour fastness | 1 each of the same colour, shade and/or print for lot size up to 500 and 2 above 500 | All the specimens to satisfy the relevant requirements. |

Table 4 Requirements of Vests
(Clause 5.2)

| Sl No. (1) | Characteristic (2) | Requirement (3) | Method of Test, Ref to (4) |
|---------------|---|--------------------|-------------------------------|
| i) | Dimensional change due to relaxation, percent, <i>Max</i> : | | |
| | a) Wales | 5 | B-6 |
| | b) Courses | 5 | B-6 |
| ii) | pH value of aqueous extract (Cold method) | 6.0-8.0 | IS 1390 |
| iii) | Colour fastness of dyed vest to: | | |
| | a) Light (<i>see Note</i>) | 4 or better | IS 2454 or IS 686 |
| | b) Washing, Test C (3): | | |
| | 1) Change in colour | 4 or better | IS/ISO 105 - C10 |
| | 2) Staining on adjacent fabric | 4 or better | |
| | c) Perspiration (Acidic and Alkaline): | | IS 971 |
| | 1) Change in colour | 4 or better | |
| | 2) Staining on adjacent fabric | 4 or better | |
| | d) Rubbing: | | IS 766 |
| | 1) Dry | 4 or better | |
| | 2) Wet | 3 or better | |

NOTE — In case of dispute colour fastness to light shall be determined by the method prescribed in IS 686.

Table 5 Sample Size and Permissible Number of Non-Conforming Vests
(Clauses 9.2 and 9.3)

| Sl No. (1) | Number of Vests in the Lot (2) | Physical Characteristics | | Number of Vests to be Inspected (Other Requirements) (5) |
|---------------|-----------------------------------|--|---|---|
| | | Number of Vests to be Inspected (3) | Permissible Number of Non-Conforming Vests (4) | |
| i) | Up to 300 | 10 | 0 | 3 |
| ii) | 301 - 500 | 20 | 1 | 5 |
| iii) | 501 - 1 000 | 32 | 3 | 5 |
| iv) | 1 001 and above | 50 | 5 | 8 |

ANNEX A*(Clause 2)***LIST OF REFERRED INDIAN STANDARDS**

| <i>IS No.</i> | <i>Title</i> | <i>IS No.</i> | <i>Title</i> |
|---------------|--|------------------------|---|
| 686 : 1985 | Methods for determination of colour fastness of textile materials to daylight (<i>first revision</i>) | 3596 : 1967 | hosiery yarn and goods |
| 766 : 1988 | Method for determination of colour fastness of textile materials to rubbing (<i>first revision</i>) | 6359 : 1971 | Glossary of terms relating to hosiery |
| 971 : 1983 | Method for determination of colour fastness of textile materials to perspiration (<i>first revision</i>) | 9469 : 2003 | Method for conditioning of textiles |
| 1390 : 1983 | Methods for determination of pH value of aqueous extracts of textile materials (<i>first revision</i>) | | Textiles — Fabric, Cotton, Plain (Single Jersey) knitted — Specification (<i>second revision</i>) |
| 1720 : 1978 | Specification for cotton sewing threads (<i>second revision</i>) | 9543 : 1980 | Specification for spun polyester sewing threads |
| 2454 : 1985 | Methods for determination of colour fastness of textile materials to artificial light (Xenon lamp) (<i>first revision</i>) | 10789 : 2000 | Textiles- Stitch types- Classification and terminology (<i>first revision</i>) |
| 3086 : 1965 | Code for seaworthy packaging of cotton hosiery yarn and goods | 11161 : 2000 | Textiles — Seam types – Classification and terminology (<i>first revision</i>) |
| 3325 : 1965 | Code for inland packaging of cotton | 14452 : 2009 | Textiles — Care labelling code using symbols — Specification (<i>first revision</i>) |
| | | SP 45 : 1988 | Handbook on glossary of textiles terms |
| | | IS/ISO105 — C10 : 2006 | Textiles — Tests for colour fastness : Part C10 Colour fastness to washing with soap or soap and soda |

ANNEX B*(Clauses 4.1.1, 4.3.2, 5.1 and 5.2)***METHODS OF TEST****B-1 CONDITIONING OF TEST SPECIMENS AND ATMOSPHERIC CONDITIONS FOR TESTING**

The test specimen shall be tested in prevailing atmospheric conditions. In case of dispute, the sample shall be conditioned and tested in the standard atmosphere as given in IS 6359.

B-2 DIMENSIONS

Take each vest constituting the test specimens. Lay it flat on a table. Remove by hand all creases and wrinkles without distorting the specimen. Measure nearest to 0.5 cm the dimensions given in Table 2 or Table 3 as the case may be. For RNS vest, the method recommended in **B-3** may be followed for measuring the dimensions of neck opening.

B-3 MEASUREMENT OF ROUND NECK OPENING

Measurement of round neck opening shall be carried out by running the periphery of round neck opening along a measuring scale preferably starting from the shoulder seam and coming back to the same point. It shall be ensured that vest is not stretched and all creases are removed. The dimension shall be measured nearest to 0.5 cm.

B-4 MEASUREMENT OF DEPTH OF HEM OR WIDTH OF FOLDING

Lay down a vest flat on a table. Remove all creases and wrinkles without distorting the specimen. Measure with the help of a scale the depth of hem or width of folding nearest to 1 mm. Measurement of depth of hem

or width or folding at neck opening, armhole opening or at bottom of the vests shall be made at 5 equidistant points and report the average value.

B-5 DETERMINATION OF MASS PER SQUARE METER

B-5.1 Take a vest from the test sample. Lay it flat on a table. Remove by hand all creases and wrinkles without distorting the specimen. Cut from it a test specimen measuring 20 cm × 20 cm in such a way that the two of its sides are parallel in the direction of wales and the other two parallel in the direction of courses.

B-5.2 After conditioning the test specimen to moisture equilibrium at room temperature, measure the weight of the specimen nearest to 0.01 g using a suitable balance.

B-5.3 Calculation

Calculate the mass per unit area of the specimen by the following formula:

$$M = \frac{W}{0.04}$$

where

M = mass of the specimen, in g/m², and

W = weight of 20 cm × 20 cm specimen, in g.

Similarly, determine the mass per unit area of at least four more test specimens and calculate the average of all the values obtained.

B-6 DIMENSIONAL CHANGES (DUE TO RELAXATION)

B-6.1 Marking of Test Specimens

B-6.1.1 Take a vest from the test sample. Cut from it a test specimen measuring approximately 10 cm × 10 cm in such a way that the two of its sides are parallel in the direction of wales and the other two parallel in the direction of courses. Mark the direction of wales and courses on the test specimen.

B-6.1.2 Mark centrally on the test specimen, by means of indelible ink or a fast dyed cotton sewing thread, an area 5 cm × 5 cm with two of its sides in the direction of wales and the other two in the direction of course. Spread this test specimen on a flat smooth surface,

carefully removing by hand all creases and wrinkles. Within this area, mark four pairs of marks, two pairs each in the wales direction and the courses direction in such a way that the distance between each pair of marks is the same.

B-6.2 Procedure

B-6.2.1 Place test specimen on a glass plate and carefully remove by hand all creases and wrinkles without distorting it and place the other glass plate on the test specimen. Measure, correct to the nearest millimetre, the distance between each pair of marks separately.

B-6.2.2 Lay the test specimen flat in a tray of suitable size and of depth of minimum 10 cm. Soak it under a head of 25 mm of water containing 0.5 percent suitable wetting agent at 30 to 35°C for 2 h. Drain out the water and remove the test specimen carefully so that it is not stretched and lay it flat on a smooth surface. Remove the excess of water by absorbent material and dry it at room temperature.

B-6.2.3 After drying, condition the test specimen to moisture equilibrium in standard atmosphere, if needed (*see B-1.1*). Place it on the glass plate, carefully remove all wrinkles and creases and place the other glass plate on the test specimen. Measure correct to the nearest millimetre, the distance between each pair of marks separately.

B-6.2.4 Calculate, separately, the percentage of dimensional change both in the direction of wales and courses by the following formula:

$$S = \frac{100 \times (a - b)}{a}$$

where

S = dimensional change, percent;

a = distance between a pair of marks (along the wales or courses direction as the case may be) before soaking; and

b = distance between the same pair of marks after soaking.

B-6.2.5 Calculate separately the dimensional change between the two pair of marks in the direction of wales and in the direction of courses and calculate the average dimensional change in each direction.

ANNEX C*(Foreword)***COMMITTEE COMPOSITION****Hosiery Sectional Committee, TXD 10**

| <i>Organization</i> | <i>Representative(s)</i> |
|---|--|
| The South India Textile Research Association, Coimbatore | DR PRAKASH VASUDEVAN (Chairman) SHRI K. BALASUBRAMANIAN (<i>Alternate</i>) |
| Apparel Export Promotion Council, Gurgaon | SHRI V. VIJAY KUMAR |
| Champion Knitting Co, Tirupur | SHRI R. RAMALINGAM |
| Chitralaya Banian Co, Tirupur | SHRI T. R. VIJAY KUMAR SHRI S. N. KATHIR (<i>Alternate</i>) |
| Directorate General of Supplies & Disposals, New Delhi | ADDITIONAL DIRECTOR GENERAL (QA) |
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